REMARKS

Applicants thank Examiner Havlin for his review of the pending claims. Claims 14-26 are currently pending. Claims 1-13 are canceled. Claim 14 is withdrawn. Claims 15-20 are amended. Claims 21-26 are added. No new matter has been added. In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Further, Applicants believe that there are reasons other than those set forth below why the pending claims are patentable, and reserve the right to set forth those reason, and to argue for the patentability of claims not explicitly addressed herein, in future papers.

Election/Restrictions

Applicants note the finality of the Restriction Requirement and maintain their traversal. Applicants reserve all rights related to their traversal.

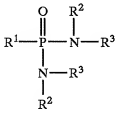
35 USC § 103 Rejection

The Examiner rejected claims 15-20 as being obvious over Delangle et al. (J. Org. Chem, 1996, v. 61, p. 8904-14) ("Delangle"), and over Alberts et al. (J. Am. Chem. Soc., 1979, v. 101, p. 3545-53) ("Alberts"). Applicants respectfully traverse the rejection.

Claim 15, as amended, recites,

A process for extracting a rare earth metal ion from an aqueous solution containing a rare earth metal ion, comprising using as an extraction agent the phosphonamide compound represented by the general formula [1]

[1]



(wherein R^1 represents an alkyl group, a cycloalkyl group, an alkenyl group, a cycloalkenyl group, an alkynyl group, an aryl group, an aralkyl group, or a heterocyclic group, with the proviso that each group may have a substituent; R^2 represents a hydrogen atom, an alkyl group, a cycloalkyl group, an alkenyl group, a cycloalkenyl group, an aryl group, an aralkyl group, or a heterocyclic group, with the proviso that each group may have a substituent; R^3 represents a hydrogen atom, an alkyl group, a cycloalkyl group, an alkenyl group, a cycloalkenyl group, an aryl group, an aralkyl group, or a heterocyclic group, with the proviso that each group may have a substituent; and the two R^3s may be united to form an alkylene group, a cycloalkylene group or an arylene group).

The Cited References

The references do not render claim 15 obvious because they do not teach or suggest the extracting of rare earth metal ions and they do not teach or suggest the phosphonamide compound of general formula [1].

Delangle exemplifies how one of skill in the art would combine Delangle with Alberts. This is because Delangle itself is a combined teaching of the work of Delangle et al. with Alberts et al. Delangle incorporated the teachings of Alberts, citing it for using a picrate extraction method, to arrive at the disclosure Delangle ultimately published in the *J. Org. Chem.* Delangle discloses the trapping of alkali metal and ammonium cations using a crown-ether-containing phosphonamide. Delangle narrowly describes the types of metals that could be trapped by the crown-ether-containing phosphonamide. Indeed, the narrowness of its disclosure is evidenced throughout the reference. For example,

Delangle explains that minor changes in structure can have an impact on the types of metals to which it can form a complex. (Delangle, p. 8904). Additionally, Delangle teaches that certain phosphonamides will not form complexes with any metals at all. Id. Certain phosphonamides, if structurally modified, will exhibit an increase or decrease in the complexing ability to interact with metal ions depending on the modification. (Delangle, pp. 8904, 8908).

Alberts does not broaden the teachings of Delangle. As noted above, Delangle cites Alberts for using a picrate extraction method. Although Alberts used a picrate extraction method to extract a broad range of metal cations, it did so using macrocycles completely devoid of phosphorous, let alone phosphonamides. (Alberts, 3545-3553).

The Combined References Do Not Teach Extracting Rare Earth Metal Ions

When Delangle adopted Alberts' teachings regarding the picrate extraction method and applied them to the crown-ether-containing phosphonamide molecules, Delangle clearly narrowed the types of metals (compared to those disclosed by Alberts) that could be extracted using this method. Delangle limited his teachings specifically to alkali metals and ammonium cations since those exhibited increased complexing capabilities with the crown-ether-containing phosphonamide. (Delangle, pp. 8904, 8908, 8911-12). This is true even though Delangle was well aware of the teachings of Alberts, as evident by the citation thereto. One of skill in the art would not think to broaden the teachings of Delangle because the Delangle reference is replete with remarks that suggest that minor changes in structure can have an impact on the types of metals to which it can form a complex. (Delangle, p. 8904). Alberts does not change this result because the macrocycles of Alberts are so different from the disclosed phosphonamides of Delangle. Accordingly, Delangle and Alberts do not render claim 15 obvious as it is drawn to a method of extracting rare earth metal ions. Thus, withdrawal of the rejection is requested.

Dependent claims 16-26 depend from claim 15 and are also not rendered obvious by Delangle and Alberts simply by virtue of their dependency upon claim 15. Withdrawal of the 103 rejection is therefore respectfully requested.

The Combined References Do Not Teach The Claimed Phosphonamide Macrocycle

All the phosphonamides taught in Delangle include a macrocyclic conformation with a crown ether moiety. Delangle specifically teaches that the crown ether moiety represents a predominant factor for the ability of a particular macrocycle to complex with an alkali metal and an ammonium cation. (Delangle, p. 8911). Thus, one of skill in the art seeking to modify the phosphonamides would be led away from substituting the crown ether moiety.

For Delangle molecules **5** and **8** to render claim 15 obvious, the two R^3 groups would have to be united and form a crown ether moiety. However, in claim 15, when the two R^3 groups are joined, the only covered groups are an alkylene group, a cycloalkylene group or an arylene group. As these terms are used by Applicants, they do not cover the crown ether moieties disclosed in the Delangle reference. Alberts does not cure the deficiencies of Delangle because the macrocycles of Alberts do not contain phosphonamides or phosphorous. Therefore, Delangle and Alberts do not render claim 15 obvious. Accordingly, Applicants request withdrawal of the rejection.

Dependent claims 16-26 depend from claim 15 and are also not rendered obvious by Delangle and Alberts simply by virtue of their dependency upon claim 15. Withdrawal of the 103 rejection is therefore respectfully requested.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in optimal form for examination. Accordingly, favorable examination on the merits is respectfully requested.

Applicants believe that any fee due with this response is identified in an accompanying transmittal. However, if any additional fee is due, please charge the Deposit Account No. 18-0013, under Order No. 80304-0030 from which the undersigned is authorized to draw. To the extent necessary, a petition for extension of time under 37

C.F.R. § 1.136 is hereby made, the fee for which should be charged to such deposit account number.

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Respectfully submitted,

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Should additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge Deposit Account No. 180013 for any such fees; and Applicants(s) hereby petition for any needed extension of time.